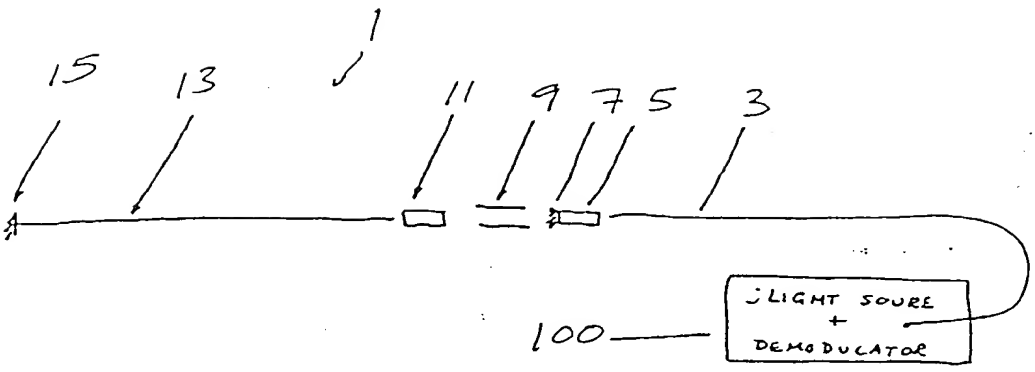


FIGURE 1A

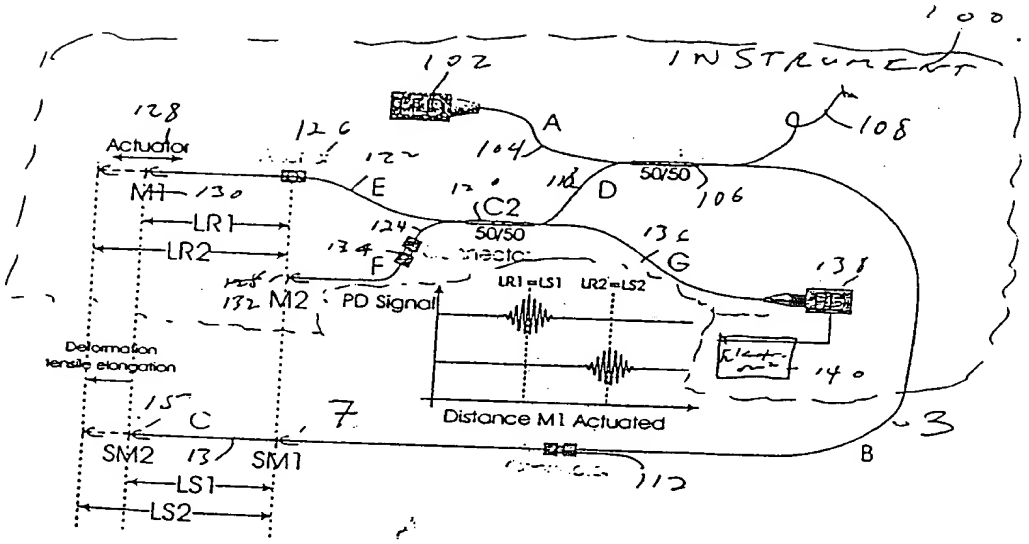

100
INSTRUMENT
102
104
106
108
110
112
A
B
C
D
E
F
G
C2
50/50
50/50
Actuator
M1
M2
LR1
LR2
LS1
LS2
SM1
SM2
PD Signal
LR1=LS1
LR2=LS2
Distance M1 Actuated
Deformation
tensile elongation

FIGURE 1B

Figure 2

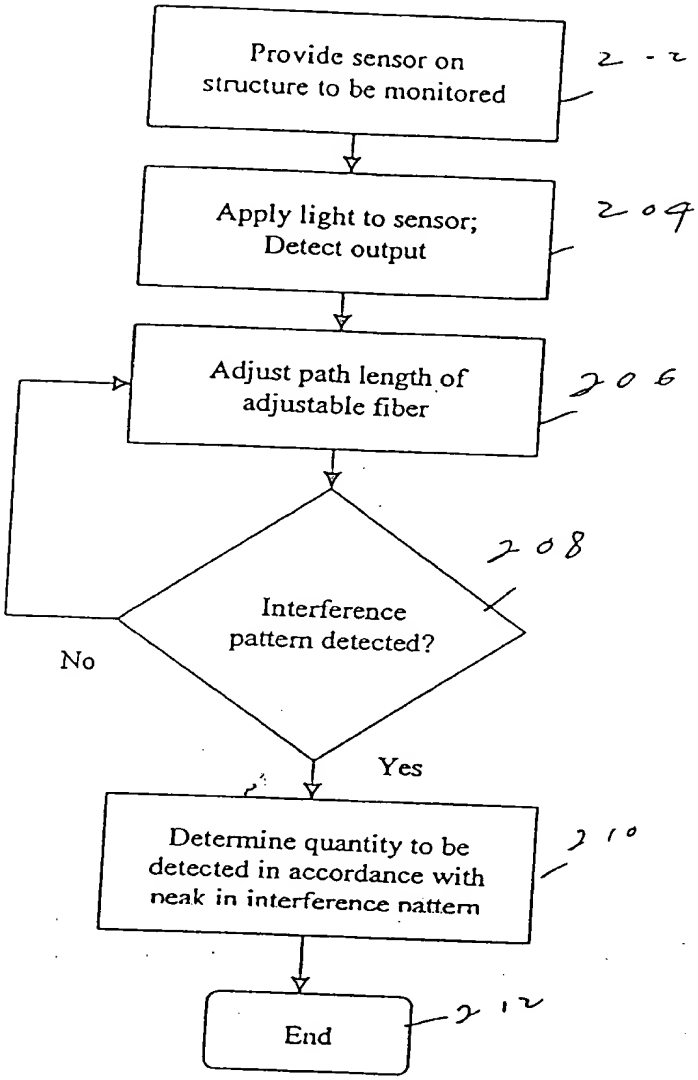

Provide sensor on structure to be monitored
202
Apply light to sensor; Detect output
204
Adjust path length of adjustable fiber
206
Interference pattern detected?
208
No
Yes
Determine quantity to be detected in accordance with peak in interference pattern
210
End
212

Fig. 3A

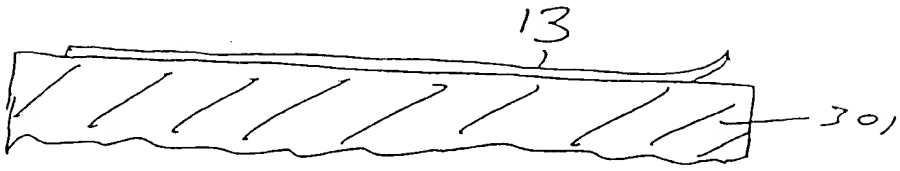


Fig. 3B

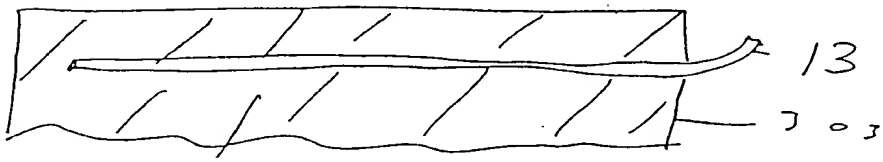


Fig. 3C

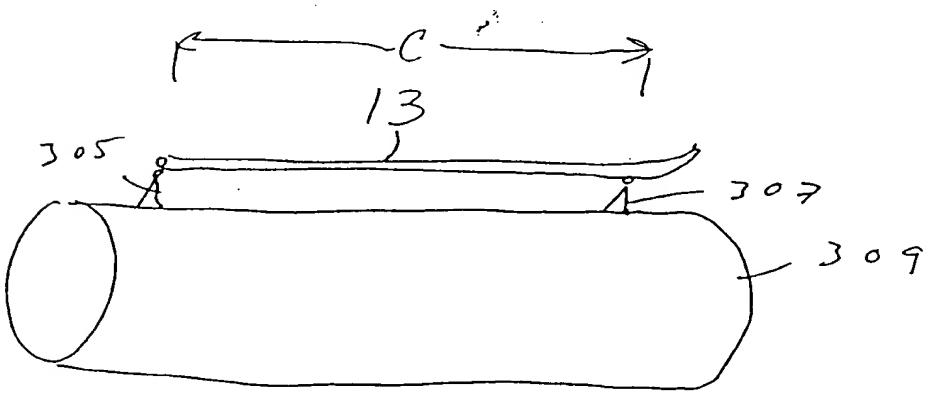


Fig. 4A

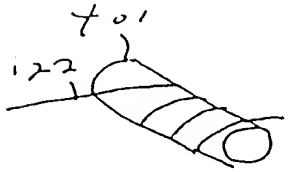


Fig. 4B

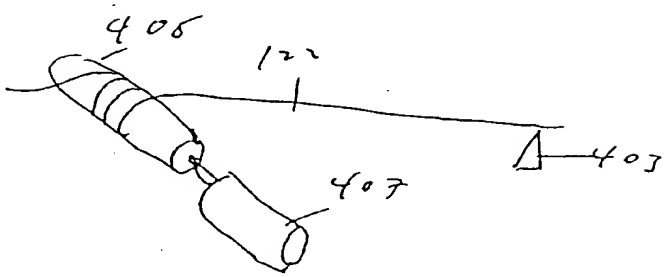


Fig. 5A

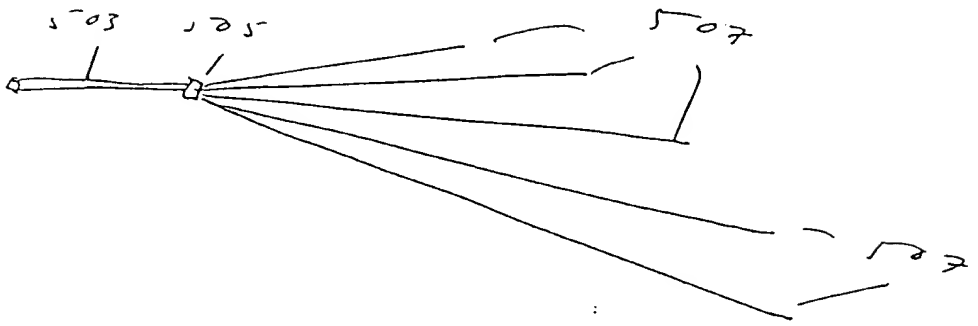
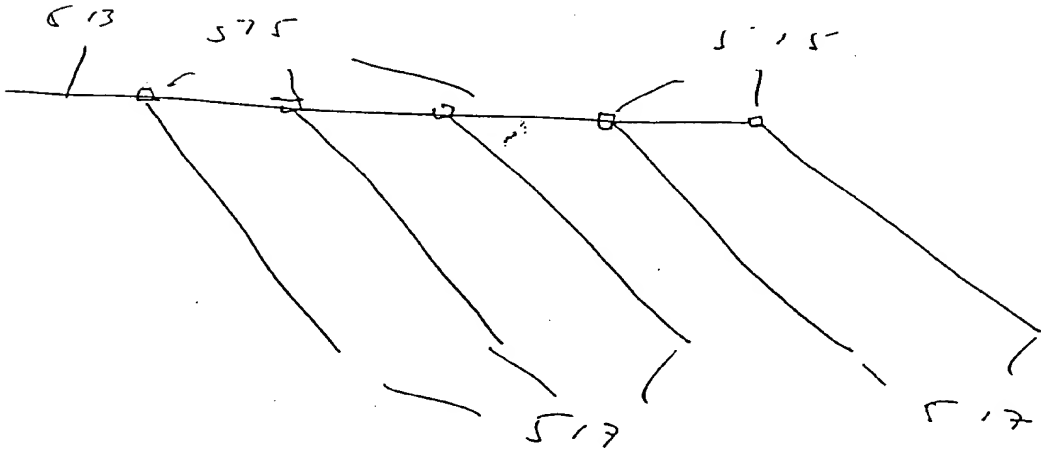


Fig. 5B



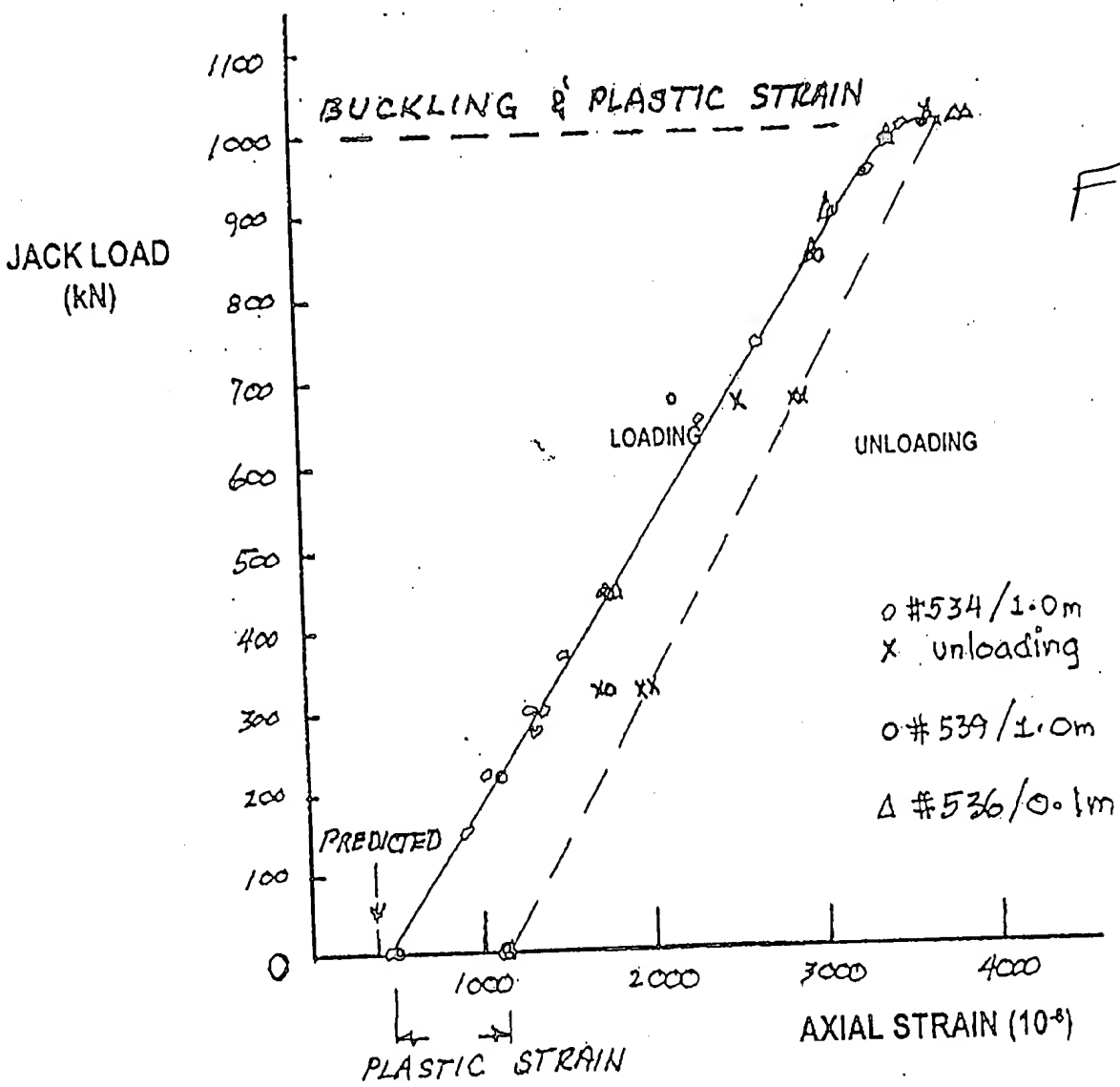

BUCKLING & PLASTIC STRAIN
JACK LOAD (kN)
1100
1000
900
800
700
600
500
400
300
200
100
0
LOADING
UNLOADING
o #534/1.0m
x unloading
o #539/1.0m
Δ #536/0.1m
PREDICTED
1000
2000
3000
4000
AXIAL STRAIN (10^{-6})
PLASTIC STRAIN

Fig. 6

20020TU SCH28660

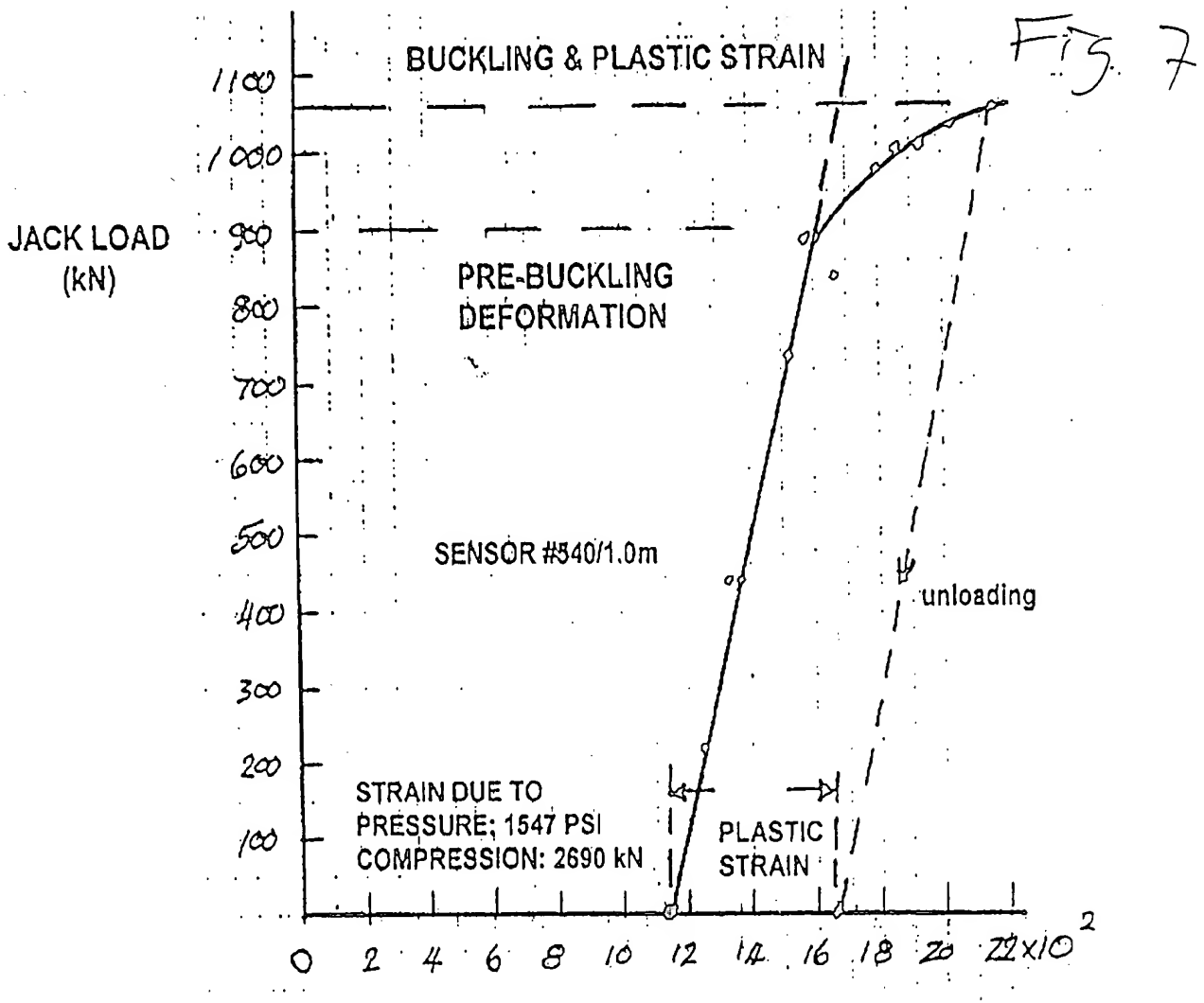


Fig. 7